

**EVALUATION OF PUGET SOUND FREEWAY HOV LANE HOURS OF  
OPERATION DEMONSTRATION: ONE-YEAR REPORT**

**BRIEFING PAPER**

Prepared for the  
December 2004 Transportation Commission Meeting

Prepared by: Mark Leth, NW Region Traffic Engineer, Leah Bolotin and  
Charles Prestrud, Urban Planning Office

Reviewed by: Mike Cummings, Manager, Urban Planning Office, and  
Toby Rickman, State Traffic Engineer

Approved by: Charlie Howard, Director, Strategic Planning and Programming, and  
Paula J. Hammond, Chief of Staff

**PURPOSE:**

Update the Commission on the Puget Sound High Occupancy Vehicle (HOV) Lane Hours of Operation Demonstration Project.

**ACTION/OUTCOME:**

The Commission will be briefed on the demonstration project and the first year results from the ongoing project evaluation. No action is requested at present.

**BACKGROUND:**

The performance of the Puget Sound region freeway HOV lanes was documented in an extensive study conducted in 2002 and completed in early 2003. The study found that I-405 and other eastside freeways had surplus HOV lane capacity after 7:00 pm, and that in some instances, allowing general purpose traffic to use this capacity had the potential to improve traffic flow.

Pursuant to the study findings, the Commission directed the Department to implement a two-year demonstration project to open HOV lanes on freeways east of Lake Washington (I-405, I-90, SR 520, and SR 167) to general purpose traffic between the hours of 7:00 pm and 5:00 am. This change in operating policy is in effect on designated segments of the HOV system seven nights per week. The demonstration project is designed to determine whether the revised policy has an impact on traffic speed, volume, safety, and HOV lane use relative to general purpose lane use.

The department proceeded with implementation of the demonstration project during the summer of 2003. This work, which was coordinated with FHWA and local jurisdictions, consisted of numerous safety and operational improvements including installation of guard rail, shoulder rumble strips, raised lane markings, and signage. These improvements were constructed in June and July of 2003. The HOV lane operating policies were changed on each freeway segment as the improvements were completed.

## **DISCUSSION:**

The Commission's direction called for periodic reports documenting performance of the HOV lanes. The presentation at the December 2003 Commission meeting was the first periodic report following implementation of the revised hours of operation, and covered only the first two months of operation. This presentation represents the second report following implementation, and covers the first 12 months of operation. Findings of the interim analysis performed by the Washington State Transportation Center (TRAC) report, can be summarized as follows:

- Use of the HOV lanes - In general, there was a noticeable increase in the percentage and number of SOV's using the HOV lanes in the evening hours, particularly on freeway segments with regular evening congestion. The change in HOV lane usage varied considerably from one location to another. Southbound I-405 near Newcastle had over 20% SOV's after 7 pm, and southbound SR 167 near Renton almost 30%. Locations with less congestion showed much less change in SOV use of the HOV lane.
- Freeway speed and congestion - Analysis of data from the HOV lane hours of operation does not show a significant change in HOV lane or general purpose lane speed. Congestion on the freeway system typically dissipates by 7:00 pm, therefore the comparatively modest changes in HOV lane volumes after 7:00 pm have not resulted in significant decreases in HOV lane speeds, or increases in general purpose lane speeds. There are, however, several locations, including on I-405 and SR 167, where small decreases in general purpose lane congestion may have resulted from traffic shifting to the HOV lane immediately after 7 pm.
- Compliance with HOV policy - The change in SOV violations of the HOV lane during transition periods (right before and after restriction to HOV's) was generally small – an increase of between 1 and 4%. In comparison with national experience, the Puget Sound region continues to have a low rate of HOV lane violations.
- Safety and collision trends - Preliminary (90%) collision statistics are available for only the first five months of operation. A review of this data did not reveal a significant increase or decrease in run-off-the-road collisions, when compared to prior years. While it is premature to draw firm conclusions from such a limited sample of data, these results suggest that no outstanding safety problems have resulted from the demonstration project to date.
- Public perception - Agreement with the new policy was at 66% overall, and 59% among users of HOV modes. The survey data indicates that the new policy also has improved opinion of the HOV lane network in general for almost 40% of the respondents overall. Between 17% and 22% felt maneuverability, safety, or speeds were somewhat or much improved. Responses to the survey (taken in spring of 2004) suggest that awareness of the new hours of operation is only around 36%.

These generally favorable results support continuation of the same operating policy through the second year of the demonstration project. WSDOT project staff plan on the following course of action over the second-year phase:

- 1) Perform additional analysis of HOV and general purpose lane speed and congestion in the period immediately following 7 pm to determine whether the demonstration project is yielding congestion relief benefits.
- 2) When additional collision data becomes available, determine more conclusively the safety impacts (positive or negative) attributable to the roadside improvements and revised operational policy that were implemented as part of the demonstration project.
- 3) Continue surveying of public opinion regarding the HOV system and HOV operating policy should be conducted, particularly to determine whether the recent upturn in public attitude is attributable to the revised hours of operation.
- 4) Continue coordination with Transit agencies through the end of the demonstration project.

In accordance with the adopted process for review and modification of WSDOT HOV policy, the interim report will be presented to the PSRC HOV Policy Advisory Committee. This is scheduled to occur in early December.

Upon completion of the demonstration project in 2005 a final report will be prepared. At that time Washington State Department of Transportation staff will obtain input from the PSRC HOV Policy Advisory Committee and the public. With this input a WSDOT staff recommendation will be presented to the Transportation Commission for consideration.

**RECOMMENDATION:**

None required at this time.

For further information, contact:

Mark Leth, NW Region Traffic Engineer, at (206) 440-4487.